



**Trus Joist**<sup>TM</sup>

A Weyerhaeuser Business

SPECIFIER'S GUIDE

## **1.9E Microllam<sup>®</sup> LVL Headers and Beams**

- ◆ Support heavier loads than comparably sized conventional glulam or sawn lumber products
- ◆ Consistent quality and uniformity for predictable performance
- ◆ Each piece is straight, strong and true – resists bowing, shrinking and twisting
- ◆ Covered by our Product Warranty against manufacturing defects for the life of the structure

**1-800-628-3997**

[www.trusjoist.com](http://www.trusjoist.com)



LIMIT  
STATES  
DESIGN

## Microllam® LVL

### An Integral Part of the FrameWorks® Building System

Microllam® laminated veneer lumber (LVL) is manufactured from thin sheets of veneer structurally bonded together to make headers and beams which span much longer distances and support heavier loads than ordinary lumber.

Microllam® LVL headers and beams are available in the following sizes:

**Width:** 13/4"    **Depths:** 7 1/4", 9 1/4", 9 1/2", 11 1/4", 11 7/8",  
14", 16", 18", 18 3/4" and 20"

*Some sizes may not be available in your region.  
Contact your local Trus Joist dealer or  
technical representative for availability.*



*The long spans and impressive strength of Microllam® LVL can make a difference in any floor or roof system.*

*The residential products in this brochure are primarily intended for use in single and multi-family dwellings. These products are readily available through our nationwide network of distributors and dealers.*

*For commercial applications such as retail stores, office buildings, schools, restaurants, hotels, nursing homes, etc., please refer to the COMMERCIAL PRODUCT MANUAL or Commercial Section of our STRUCTURAL PRODUCTS DESIGN MANUAL. Commercial products are typically designed, manufactured and sold by Trus Joist for each specific job.*

*For more information on any Trus Joist products, please call 1-800-628-3997.*

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**1.9E Microllam® LVL**  
**Specified Strengths and Moduli of Elasticity**  
**(Standard Term)**

- Shear modulus of elasticity  $G = 118,750 \text{ psi}$
- Modulus of elasticity  $E = 1.9 \times 10^6 \text{ psi}$
- Flexural stress  $F_b = 4,805 \text{ psi}^{(1)}$
- Tension stress  $F_t = 2,870 \text{ psi}^{(2)}$
- Compression perpendicular to grain  
parallel to glue line  $F_{c\perp} = 1,365 \text{ psi}^{(3)}$
- Compression parallel to grain  $F_{c\parallel} = 4,005 \text{ psi}$
- Horizontal shear perpendicular  
to glue line  $F_v = 530 \text{ psi}$

- (1) For 12" depth. For others, multiply by  $[\frac{12}{d}]^{0.136}$
- (2)  $F_t$  has been reduced to reflect the volume effects of length, width and depth for a range of common application conditions.
- (3)  $F_{c\perp}$  shall not be increased for duration of load



**1 3/4" 1.9E Microllam® LVL Factored Resistances (Standard Term)**

Design Property	Depth									
	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	18 3/4"	20"
Factored Moment Resistance (ft-lbs)	5,915	9,315	9,790	13,420	14,845	20,175	25,875	32,230	34,775	39,220
Factored Shear Resistance (lbs)	4,035	5,150	5,285	6,260	6,610	7,790	8,905	10,015	10,435	11,130
Moment of Inertia (in. <sup>4</sup> )	56	115	125	208	244	400	597	851	961	1,167
Weight (plf)	3.7	4.7	4.8	5.7	6.1	7.1	8.2	9.2	9.6	10.2

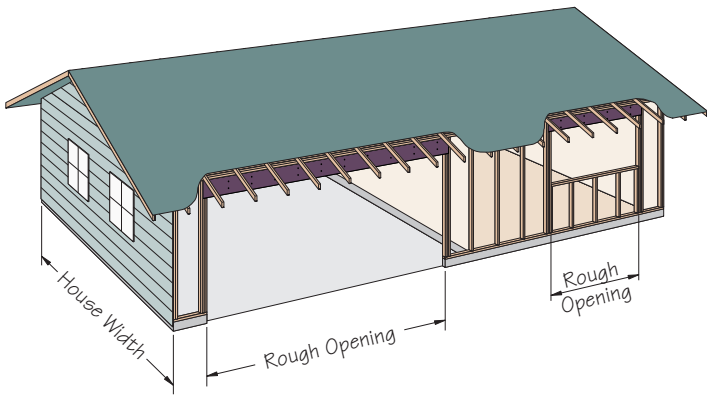


**General Assumptions for Microllam® LVL**

- Specified strengths and factored resistances are based on Limit States Design per CSA O86-01.
- Lateral support required at bearing and at 24" on-center maximum.
- No camber.
- Bearing lengths are based on Microllam® LVL's factored bearing resistance of 1090 psi.
- All members 7 1/4" and less in depth are restricted to a maximum deflection of 5/16".
- Reductions in live load have been applied in accordance with sentence 4.1.6.9.(3) NBCC 1995.
- 16", 18" and 20" beams require multiple plies.

See page 13 for multiple member beam connections.

*Microllam® LVL is intended for dry-use, non-treated applications*



## How to Use This Table

1. Determine appropriate ROOF LOAD and HOUSE WIDTH.
2. Locate ROUGH OPENING.
3. Select Microllam® LVL header size.

## Headers Supporting Roof

Unfactored Roof Load (PSF)	House Width	Rough Opening							
		8'-0"	9'-3"	10'-0"	12'-0"	14'-0"	16'-3"	18'-3"	
25LL + 15DL	24'-0"	1 3/4" x 9 1/4" 3 1/2" x 7 1/4"	1 3/4" x 9 1/2" 3 1/2" x 9 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	1 3/4" x 14" 3 1/2" x 9 1/2"	3 1/2" x 11 1/4"	3 1/2" x 14"	5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"
	30'-0"	1 3/4" x 9 1/4" 5 1/4" x 7 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 11 1/4" 5 1/4" x 11 1/4"	3 1/2" x 11 7/8" 3 1/2" x 14"	3 1/2" x 14" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"
	36'-0"	1 3/4" x 9 1/2" 3 1/2" x 9 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	3 1/2" x 11 1/4" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 14"
30LL + 15DL	24'-0"	1 3/4" x 9 1/4" 5 1/4" x 7 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	1 3/4" x 14" 3 1/2" x 11 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"
	30'-0"	1 3/4" x 9 1/4" 5 1/4" x 7 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"
	36'-0"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"
40LL + 15DL	24'-0"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	1 3/4" x 14" 3 1/2" x 9 1/2"	3 1/2" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"
	30'-0"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"
	36'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	3 1/2" x 20" 5 1/4" x 18"
50LL + 15DL	24'-0"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/2"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 18" 5 1/4" x 16"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"
	30'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 11 1/4"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 20" 5 1/4" x 18"
	36'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 11 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 7/8"	<b>3 1/2" x 14"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 14"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"	<b>5 1/4" x 18"</b>

## General Notes

Table is based on:

- Uniform loads.
- More restrictive of simple or continuous span. Ratio of short span to long span should be greater than 0.4 to prevent uplift.
- Roof truss framing with 24" soffits.
- Deflection criteria of L/360 live load and L/180 total load.

Also see *General Assumptions* on page 3.

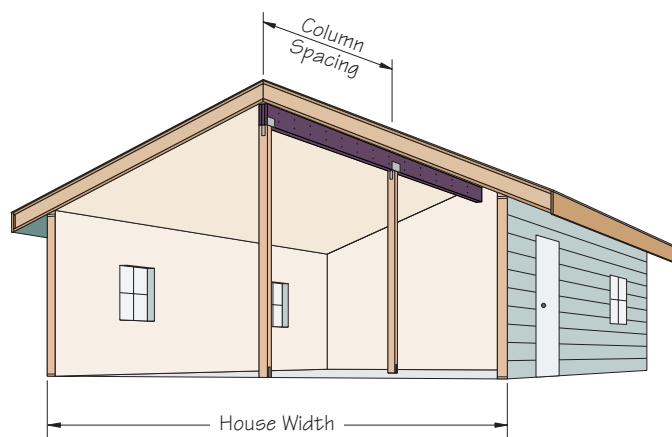
## Bearing Requirements

Minimum header support to be 2 trimmers (3") at ends and 7 1/2" at continuous span supports.

**Bold italic** header sizes require 3 trimmers (4 1/2") at ends and 11 1/4" at continuous span supports.

## How to Use This Table

1. Determine appropriate ROOF LOAD and HOUSE WIDTH.
2. Locate COLUMN SPACING.
3. Select Microllam® LVL beam size.



## Ridge Beams

Unfactored Roof Load (PSF)	House Width	Column Spacing								
		10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	
25LL + 15DL	24'-0"	3 1/2" x 9 1/4"	3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"
	30'-0"	3 1/2" x 9 1/4"	3 1/2" x 9 1/2" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 20" 5 1/4" x 18"
	36'-0"	3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 18 3/4" 5 1/4" x 18"	5 1/4" x 18"
30LL + 15DL	24'-0"	3 1/2" x 9 1/4"	3 1/2" x 9 1/2" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 18 3/4" 5 1/4" x 18"
	30'-0"	3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 18 3/4" 5 1/4" x 18"	5 1/4" x 18"
	36'-0"	3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	5 1/4" x 18 3/4"
40LL + 15DL	24'-0"	3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 20" 5 1/4" x 18"	5 1/4" x 18"
	30'-0"	3 1/2" x 9 1/2" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 18"	5 1/4" x 18"	5 1/4" x 20"
	36'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	5 1/4" x 20"	
50LL + 15DL	24'-0"	3 1/2" x 9 1/2" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 18 3/4" 5 1/4" x 18"	5 1/4" x 18"	5 1/4" x 20"
	30'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 14"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"	5 1/4" x 18"	5 1/4" x 20"	
	36'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	3 1/2" x 14" 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	5 1/4" x 18 3/4"		

## General Notes

Table is based on:

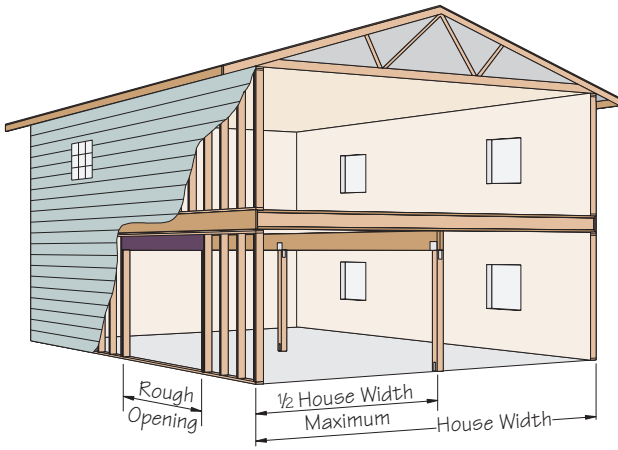
- Uniform loads.
- More restrictive of simple or continuous span. Ratio of short span to long span should be greater than 0.4 to prevent uplift.
- Deflection criteria of L/360 live load and L/180 total load.

Also see *General Assumptions* on page 3.

### Bearing Requirements

Minimum header support to be 2 trimmers (3") at ends and 7 1/2" at continuous span supports.

**Bold italic** beam sizes require 3 trimmers (4 1/2") at ends and 11 1/4" at continuous span supports.



### How to Use This Table

1. Verify that floor loading of 40 psf live load and 12 psf dead load is adequate.
2. Determine appropriate LOAD and HOUSE WIDTH.
3. Locate ROUGH OPENING.
4. Select Microllam® LVL header size.

### Headers Supporting Floor and Roof

Unfactored Load (PSF)	House Width	Rough Opening							
		8'-0"	9'-3"	10'-0"	12'-0"	14'-0"	16'-3"	18'-3"	
Roof Load 25LL + 15DL	24'-0"	1 3/4" x 11 1/4" 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 11 7/8"	3 1/2" x 18" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"
	30'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	<b>3 1/2" x 20"</b> 5 1/4" x 18"
Floor Load 40LL + 12DL	36'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 7/8"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"	<b>5 1/4" x 18"</b>	<b>5 1/4" x 18"</b>
	24'-0"	<b>1 3/4" x 11 1/4"</b> 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	<b>1 3/4" x 14"</b> 3 1/2" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	<b>3 1/2" x 18"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"
Roof Load 30LL + 15DL	30'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	<b>3 1/2" x 20"</b> 5 1/4" x 18"
	36'-0"	3 1/2" x 9 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 7/8"	<b>3 1/2" x 18"</b> 5 1/4" x 14"	5 1/4" x 16"	<b>5 1/4" x 18"</b>	<b>5 1/4" x 18"</b>
Roof Load 40LL + 15DL	24'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	<b>3 1/2" x 20"</b> 5 1/4" x 18"
	30'-0"	3 1/2" x 9 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 7/8"	<b>3 1/2" x 18"</b> 5 1/4" x 14"	5 1/4" x 16"	<b>5 1/4" x 18"</b>	<b>5 1/4" x 18"</b>
Floor Load 40LL + 12DL	36'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>5 1/4" x 18"</b>	<b>5 1/4" x 20"</b>	<b>5 1/4" x 20"</b>
	24'-0"	<b>1 3/4" x 14"</b> 3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 7/8"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"	<b>5 1/4" x 18"</b>	<b>5 1/4" x 18"</b>
Roof Load 50LL + 15DL	30'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>5 1/4" x 20"</b>	<b>5 1/4" x 20"</b>
	36'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>5 1/4" x 16"</b>	<b>5 1/4" x 18"</b>		

### General Notes

Table is based on:

- Uniform loads.
- More restrictive of simple or continuous span. Ratio of short span to long span should be greater than 0.4 to prevent uplift.
- Roof truss framing with 24" soffits.
- 80 plf unfactored wall load.
- Deflection criteria of L/360 live load and L/240 total load at floor.

Also see *General Assumptions* on page 3.

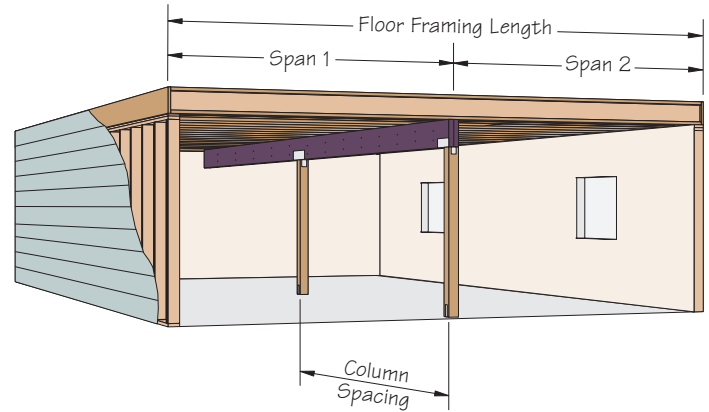
### Bearing Requirements

Minimum header support to be 2 trimmers (3") at ends and 7 1/2" at continuous span supports.

**Bold italic** header sizes require 3 trimmers (4 1/2") at ends and 11 1/4" at continuous span supports.

## How to Use This Table

1. Determine appropriate FLOOR LOAD.
2. Find the FLOOR FRAMING LENGTH that meets or exceeds the sum of spans 1 and 2 for the supported floor joists. When floor joists are continuous span, neither span 1 or 2 can be less than 40% of the FLOOR FRAMING LENGTH. If floor joists are simple span (not continuous over the Microllam® LVL beam), then the FLOOR FRAMING LENGTH may be taken as 80% of the sum of spans 1 and 2 of the floor joists.
3. Locate COLUMN SPACING.
4. Select Microllam® LVL beam size.



## Floor Girder Beams

Unfactored Floor Load (PSF)	Floor Framing Length	Column Spacing								
		10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"		
40LL + 12DL	20'-0"	3 1/2" x 9 1/4"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 20" 5 1/4" x 18"
	24'-0"	3 1/2" x 9 1/2" 5 1/4" x 9 1/4"	3 1/2" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 7/8"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 18" 5 1/4" x 16"	3 1/2" x 20" 5 1/4" x 18"	<b>3 1/2" x 20"</b> 5 1/4" x 18"
	28'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	5 1/4" x 18"
	32'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	5 1/4" x 18 3/4"
	36'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"	5 1/4" x 18"	5 1/4" x 18"	5 1/4" x 20"
	40'-0"	3 1/2" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 7/8"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	5 1/4" x 18"	5 1/4" x 18"	<b>5 1/4" x 20"</b>
	44'-0"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 7/8"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	<b>5 1/4" x 18 3/4"</b>	<b>5 1/4" x 20"</b>	
40LL + 30DL	20'-0"	3 1/2" x 9 1/4"	3 1/2" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 16" 5 1/4" x 14"	3 1/2" x 18" 5 1/4" x 16"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 18"	5 1/4" x 18"	5 1/4" x 18"
	24'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	5 1/4" x 18"	5 1/4" x 18 3/4"
	28'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/4"	3 1/2" x 14" 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 18"	5 1/4" x 18"	5 1/4" x 18"	<b>5 1/4" x 20"</b>
	32'-0"	3 1/2" x 11 1/4" 5 1/4" x 9 1/2"	<b>3 1/2" x 14"</b> 5 1/4" x 11 7/8"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 20"</b> 5 1/4" x 18"	<b>5 1/4" x 18 3/4"</b>		
	36'-0"	3 1/2" x 11 7/8" 5 1/4" x 11 1/4"	<b>3 1/2" x 14"</b> 5 1/4" x 11 7/8"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>3 1/2" x 18 3/4"</b> 5 1/4" x 16"	<b>5 1/4" x 18"</b>	<b>5 1/4" x 20"</b>		
	40'-0"	<b>3 1/2" x 14"</b> 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>5 1/4" x 16"</b>	<b>5 1/4" x 16"</b>	<b>5 1/4" x 18"</b>	<b>5 1/4" x 20"</b>		
	44'-0"	<b>3 1/2" x 14"</b> 5 1/4" x 11 1/4"	<b>3 1/2" x 16"</b> 5 1/4" x 14"	<b>3 1/2" x 18"</b> 5 1/4" x 16"	<b>5 1/4" x 18"</b>	<b>5 1/4" x 18"</b>	<b>5 1/4" x 18 3/4"</b>			

## General Notes

Table is based on:

- Uniform loads.
- More restrictive of simple or continuous span. Ratio of short span to long span should be greater than 0.4 to prevent uplift.
- Deflection criteria of L/360 live load and L/240 total load.

Also see *General Assumptions* on page 3.

### Bearing Requirements

Minimum beam support to be 2 trimmers (3") at ends and 7 1/2" at continuous span supports.

**Italic** beam sizes require 3 trimmers (4 1/2") at ends and 11 1/4" at continuous span supports.



## How to Use These Tables

1. Calculate the factored and unfactored total load (neglect beam weight) and the unfactored live load on beam or header in pounds per linear foot (plf).
2. Select appropriate SPAN (center-to-center of bearing).
3. Scan horizontally to find the proper width and a depth that exceeds actual loads.
4. Review bearing length requirements to ensure adequacy.

## Floor or Roof—Standard Term (PLF)

Span	Condition	1 3/4" Width						3 1/2" Width								
		7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"		
6'	Unfactored Resistance (LL) L/360	627						1253								
	Unfactored Resistance (TL) L/240															
	Total Factored Resistance	1278	1723	1782	2220	2387	2557	3446	3564	4440	4775					
	Min. End/Int. Bearing (in.)	2.0/5.0	2.7/6.8	2.8/7.0	3.5/8.7	3.8/9.4	2.0/5.0	2.7/6.8	2.8/7.0	3.5/8.7	3.8/9.4					
8'	Unfactored Resistance (LL) L/360	281	555	598	943	1087	562	1111	1195	1885	2174					
	Unfactored Resistance (TL) L/240	326							652							
	Total Factored Resistance	735	1159	1219	1535	1641	2025	1471	2319	2438	3070	3283	4050			
	Min. End/Int. Bearing (in.)	1.5/3.9	2.4/6.1	2.6/6.4	3.2/8.1	3.4/8.6	4.3/10.6	1.5/3.9	2.4/6.1	2.6/6.4	3.2/8.1	3.4/8.6	4.3/10.6			
9'-6"	Unfactored Resistance (LL) L/360	170	344	371	593	687	1067	340	688	742	1186	1374	2133			
	Unfactored Resistance (TL) L/240	166	511	552							332	1023	1103			
	Total Factored Resistance	520	821	863	1183	1309	1625	1041	1642	1726	2367	2619	3251			
	Min. End/Int. Bearing (in.)	1.5/3.5	2.1/5.1	2.2/5.4	3.0/7.4	3.3/8.2	4.1/10.1	1.5/3.5	2.1/5.1	2.2/5.4	3.0/7.4	3.3/8.2	4.1/10.1			
10'	Unfactored Resistance (LL) L/360	139	298	321	515	598	932	278	595	642	1030	1195	1863			
	Unfactored Resistance (TL) L/240	135	442	477							271	884	953			
	Total Factored Resistance	469	740	778	1067	1181	1525	939	1481	1557	2135	2362	3051			
	Min. End/Int. Bearing (in.)	1.5/3.5	1.9/4.9	2.0/5.1	2.8/7.0	3.1/7.8	4.0/10.0	1.5/3.5	1.9/4.9	2.0/5.1	2.8/7.0	3.1/7.8	4.0/10.0			
12'	Unfactored Resistance (LL) L/360	68	177	191	309	360	569	136	354	382	618	720	1138			
	Unfactored Resistance (TL) L/240	64	261	282	458	534							129	521	563	1068
	Total Factored Resistance	325	512	539	739	818	1113	650	1025	1078	1479	1637	2227			
	Min. End/Int. Bearing (in.)	1.5/3.5	1.6/4.1	1.7/4.3	2.3/5.8	2.6/6.5	3.5/8.8	1.5/3.5	1.6/4.1	1.7/4.3	2.3/5.8	2.6/6.5	3.5/8.8			
14'	Unfactored Resistance (LL) L/360	37	113	122	199	233	371	74	226	245	399	465	742	1076		
	Unfactored Resistance (TL) L/240	33	165	179	293	343	549	67	330	357	586	686	1098			
	Total Factored Resistance	237	375	394	542	599	816	475	751	789	1084	1199	1632	2095		
	Min. End/Int. Bearing (in.)	1.5/3.5	1.5/3.5	1.5/3.7	2.0/5.0	2.2/5.5	3.0/7.5	1.5/3.5	1.5/3.5	1.5/3.7	2.0/5.0	2.2/5.5	3.0/7.5	3.9/9.7		
16'-6"	Unfactored Resistance (LL) L/360		70	76	124	145	233	39	140	151	248	290	466	680		
	Unfactored Resistance (TL) L/240		100	109	180	211	342	31	201	217	360	423	684	1004		
	Total Factored Resistance		269	282	388	430	585	340	538	565	777	860	1171	1504		
	Min. End/Int. Bearing (in.)		1.5/3.5	1.5/3.5	1.7/4.2	1.9/4.7	2.6/6.4	1.5/3.5	1.5/3.5	1.5/3.5	1.7/4.3	1.9/4.7	2.6/6.4	3.3/8.2		
18'-6"	Unfactored Resistance (LL) L/360		50	54	89	104	168	25	100	108	178	208	335	492		
	Unfactored Resistance (TL) L/240		70	76	128	150	244	17	141	152	255	300	489	721		
	Total Factored Resistance		213	224	307	340	464	269	426	448	615	681	928	1193		
	Min. End/Int. Bearing (in.)		1.5/3.5	1.5/3.5	1.5/3.8	1.7/4.2	2.3/5.7	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.8	1.7/4.2	2.3/5.7	2.9/7.3		
20'	Unfactored Resistance (LL) L/360		40	43	71	83	134	18	79	86	141	166	268	393		
	Unfactored Resistance (TL) L/240		55	60	100	118	194	11	110	119	201	236	387	574		
	Total Factored Resistance		181	191	262	290	396	229	363	381	525	581	792	1018		
	Min. End/Int. Bearing (in.)		1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.9	2.1/5.3	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.6/3.9	2.1/5.3	2.7/6.8		
24'	Unfactored Resistance (LL) L/360				41	48	79		46	50	83	97	157	232		
	Unfactored Resistance (TL) L/240				56	67	111		60	65	112	133	222	332		
	Total Factored Resistance				180	200	273		249	262	361	400	546	702		
	Min. End/Int. Bearing (in.)				1.5/3.5	1.5/3.5	1.8/4.4		1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.8/4.4	2.3/5.6		
28'	Unfactored Resistance (LL) L/360						50		29	32	52	61	100	148		
	Unfactored Resistance (TL) L/240						68		34	38	67	80	136	206		
	Total Factored Resistance						198		180	190	262	290	397	511		
	Min. End/Int. Bearing (in.)						1.5/3.8		1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.5	1.5/3.8	1.9/4.8		

## General Notes

- Tables are based on:
  - Uniform loads (beam weight considered) and the more restrictive of simple or continuous span.
  - Deflection criteria of L/360 live load and L/240 total load.
  - Resistance in pounds per linear foot (plf).
- For deflection limits of L/480 and L/180, multiply UNFACTORED RESISTANCE (LL) and UNFACTORED RESISTANCE (TL) by 0.75 and 1.33, respectively. This value when multiplied by 1.5 may not exceed the TOTAL FACTORED RESISTANCE.

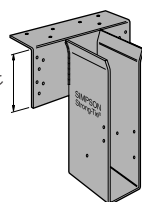
Also see General Assumptions on page 3.



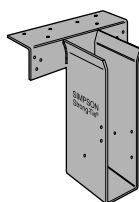
## Floor or Roof—Standard Term (PLF)

Span	Condition	3 1/2" Width			5 1/4" Width									
		18"	18 3/4"	20"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	18 3/4"	20"
6'	Unfactored Resistance (LL) L/360	1880												
	Unfactored Resistance (TL) L/240													
	Total Factored Resistance	3836 5169 5346 6660 7163												
	Min. End/Int. Bearing (in.)	2.0/5.0 2.7/6.8 2.8/7.0 3.5/8.7 3.8/9.4												
8'	Unfactored Resistance (LL) L/360	843 1666 1793 2828 3261												
	Unfactored Resistance (TL) L/240	978												
	Total Factored Resistance	2207 3479 3657 4606 4925 6075												
	Min. End/Int. Bearing (in.)	1.5/3.9 2.4/6.1 2.6/6.4 3.2/8.1 3.4/8.6 4.3/10.6												
9'-6"	Unfactored Resistance (LL) L/360	509 1032 1113 1779 2062 3200												
	Unfactored Resistance (TL) L/240	498 1534 1655												
	Total Factored Resistance	1562 2463 2589 3551 3929 4877												
	Min. End/Int. Bearing (in.)	1.5/3.5 2.1/5.1 2.2/5.4 3.0/7.4 3.3/8.2 4.1/10.1												
10'	Unfactored Resistance (LL) L/360	417 893 963 1545 1793 2795												
	Unfactored Resistance (TL) L/240	406 1326 1430												
	Total Factored Resistance	1408 2221 2335 3203 3544 4576												
	Min. End/Int. Bearing (in.)	1.5/3.5 1.9/4.9 2.0/5.1 2.8/7.0 3.1/7.8 4.0/10.0												
12'	Unfactored Resistance (LL) L/360	205 530 573 928 1081 1708												
	Unfactored Resistance (TL) L/240	193 781 845 1374 1603												
	Total Factored Resistance	975 1538 1617 2219 2455 3340												
	Min. End/Int. Bearing (in.)	1.5/3.5 1.6/4.1 1.7/4.3 2.3/5.9 2.6/6.5 3.5/8.8												
14'	Unfactored Resistance (LL) L/360	112 339 367 598 698 1113 1613												
	Unfactored Resistance (TL) L/240	100 495 536 880 1029 1648												
	Total Factored Resistance	713 1126 1184 1626 1799 2448 3143												
	Min. End/Int. Bearing (in.)	1.5/3.5 1.5/3.5 1.5/3.7 2.0/5.0 2.2/5.5 3.0/7.5 3.9/9.7												
16'-6"	Unfactored Resistance (LL) L/360	946	1059	58 210 227 372 435 699 1021 1419 1588										
	Unfactored Resistance (TL) L/240	47 301 326 541 634 1026 1506												
	Total Factored Resistance	1875	2024	510 807 848 1165 1290 1757 2256 2813 3036										
	Min. End/Int. Bearing (in.)	4.1/10.2	4.4/11.0	1.5/3.5 1.5/3.5 1.5/3.5 1.7/4.3 1.9/4.7 2.6/6.4 3.3/8.2 4.1/10.2 4.4/11.0										
18'-6"	Unfactored Resistance (LL) L/360	687	770	922	37 150 162 266 312 503 738 1030 1155 1384									
	Unfactored Resistance (TL) L/240	1012 26 211 229 382 450 733 1082 1518												
	Total Factored Resistance	1488	1606	1813	403 639 672 923 1022 1393 1790 2232 2409 2719									
	Min. End/Int. Bearing (in.)	3.6/9.1	3.9/9.8	4.4/11.1	1.5/3.5 1.5/3.5 1.5/3.5 1.5/3.8 1.7/4.2 2.3/5.7 2.9/7.3 3.6/9.1 3.9/9.8 4.4/11.1									
20'	Unfactored Resistance (LL) L/360	551	618	742	27 119 129 212 248 401 590 826 928 1113									
	Unfactored Resistance (TL) L/240	808 909 16 164 179 301 354 581 861 1212 1363												
	Total Factored Resistance	1270	1371	1548	343 544 573 788 872 1189 1528 1906 2057 2322									
	Min. End/Int. Bearing (in.)	3.4/8.4	3.6/9.1	4.1/10.3	1.5/3.5 1.5/3.5 1.5/3.5 1.5/3.5 1.6/3.9 2.1/5.3 2.7/6.8 3.4/8.4 3.6/9.1 4.1/10.3									
24'	Unfactored Resistance (LL) L/360	327	368	442	13 69 75 124 145 236 348 490 551 664									
	Unfactored Resistance (TL) L/240	472 532 643 2 90 98 169 200 332 498 708 798 965												
	Total Factored Resistance	876	946	1069	235 374 393 541 600 819 1053 1315 1420 1603									
	Min. End/Int. Bearing (in.)	2.8/7.0	3.0/7.6	3.4/8.6	1.5/3.5 1.5/3.5 1.5/3.5 1.5/3.5 1.5/3.5 1.8/4.4 2.3/5.6 2.8/7.0 3.0/7.6 3.4/8.5									
28'	Unfactored Resistance (LL) L/360	209	235	284	44 48 79 92 150 222 313 353 426									
	Unfactored Resistance (TL) L/240	295 334 405 52 57 101 120 204 309 442 501 608												
	Total Factored Resistance	639	690	780	271 285 393 436 596 767 958 1035 1170									
	Min. End/Int. Bearing (in.)	2.4/6.0	2.6/6.5	2.9/7.3	1.5/3.5 1.5/3.5 1.5/3.5 1.5/3.5 1.5/3.8 1.9/4.8 2.4/6.0 2.6/6.5 2.9/7.3									

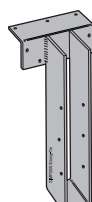
7/4" minimum depth support member required (HGLTV only)



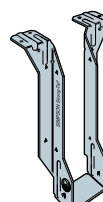
HGLTV



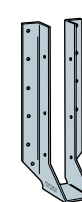
GLTV



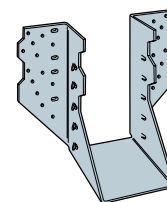
WPU



MIT



HU



HGUS

## Top Flange Hangers

Supported Member Width	Supported Member Depth	Hanger	Nail Type		Maximum Factored Resistance (lbs)
			Header	Joist	
1 3/4"	9 1/4"	WPU1.81/9.25	16d	10d x 1 1/2"	6,040
	9 1/2"	MIT9.5	16d	10d x 1 1/2"	2,270
		WPU1.81/9.5	16d	10d x 1 1/2"	6,040
	11 1/4"	WPU1.81/11.25	16d	10d x 1 1/2"	6,040
	11 7/8"	MIT11.88	16d	10d x 1 1/2"	2,270
	14"	WPU1.81/11.88	16d	10d x 1 1/2"	6,040
3 1/2"	9 1/4"	GLTV3.56/9.25	16d	16d	6,175
	9 1/2"	GLTV3.59	16d	16d	6,175
	11 1/4"	GLTV3.56/11.25	16d	16d	6,175
	11 7/8"	GLTV3.511	16d	16d	6,175
	14"	GLTV3.514	16d	16d	6,175
	16"	GLTV3.516	16d	16d	6,175
	18"	GLTV3.518	16d	16d	6,175
	20"	GLTV3.520	16d	16d	6,175
5 1/4"	9 1/4"	GLTV5.50/9.25	16d	16d	8,700
	9 1/2"	GLTV5.59	16d	16d	8,700
	11 1/4"	GLTV5.50/11.25	16d	16d	8,700
	11 7/8"	HGLTV5.511	16d	16d	8,700
	14"	HGLTV5.514	16d	16d	8,700
	16"	HGLTV5.516	16d	16d	8,700
	18"	HGLTV5.518	16d	16d	8,700
	20"	HGLTV5.520	16d	16d	8,700

## Face Mount Hangers

Supported Member Depth	Supported Member Depth	Hanger	Nail Type		Maximum Factored Resistance (lbs)
			Header	Joist	
1 3/4"	9 1/4" – 9 1/2"	HU7	16d	10d x 1 1/2"	2,015
	11 1/4" – 14"	HU11	16d	10d x 1 1/2"	3,700
	14"	HU14	16d	10d x 1 1/2"	4,715
3 1/2"	9 1/4" – 11 1/4"	HU48	16d	10d	1,680
	11 1/4" – 16"	HU412	16d	10d	2,690
		HGUS412	16d	16d	11,210
	14" – 20"	HU416	16d	10d	3,365
5 1/4"	9 1/4" – 11 7/8"	HGUS414	16d	16d	11,870
		HU5.31/9	16d	16d	2,355
	9 1/2" – 14"	HU5.31/11	16d	16d	2,690
	11 7/8" – 18"	HU5.31/14	16d	16d	3,030
	14" – 20"	HGUS5.50/14	16d	16d	11,870

## General Notes

The hangers listed are manufactured by Simpson Strong-Tie® Company Inc. For additional information refer to their literature.

Contact your Trus Joist representative for assistance with other hanger or support conditions.

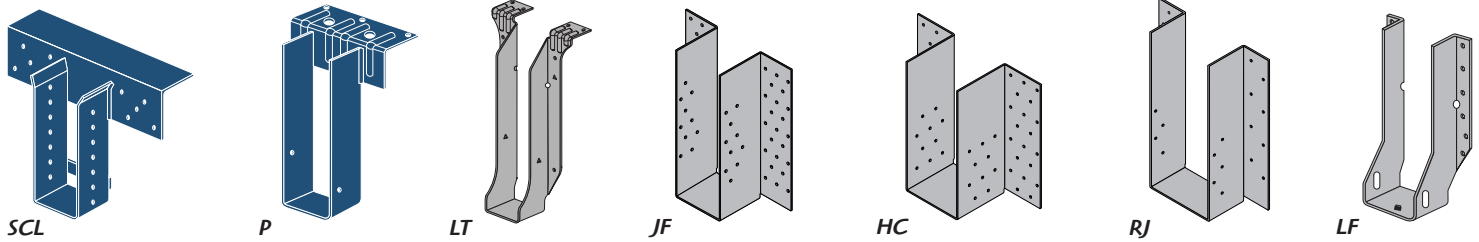
- Factored resistances are based on standard term duration of load.
- Hanger capacity may be more or less than that of the supported member; therefore, both the hanger and the Microllam® LVL capacities must be checked.
- Leave 1/16" clearance (1/8" maximum) between the end of the supported member and the support member or hanger.

## Header Assumptions

- Hangers supported by headers of Microllam® LVL, Parallam® PSL, TimberStrand® LSL, Douglas fir or southern pine.
- Top flange hangers supported by 6x6 minimum size headers.
- Face mount hangers supported by 2" minimum width headers.

## Nailing Requirements

- Fill all round and positive angle nail holes with the proper nails.
- 10d x 1 1/2" nails are 9 gauge (0.148" diameter) by 1 1/2" long.
- 10d nails are 10d common (0.148" diameter) by 3" long.
- 16d nails are 16d common (0.162" diameter) by 3 1/2" long.



## Top Flange Hangers

Supported Member Width	Supported Member Depth	Hanger	Nail Type		Maximum Factored Resistance (lbs)
			Header	Joist	
1 3/4"	9 1/4"	P 17925	16d	10d x 1 1/2"	2,790
	9 1/2"	LT 179	16d	#8 x 1 1/2"	2,950
		SCL 9	16d	10d x 1 1/2"	5,390
	11 1/4"	P 171125	16d	10d x 1 1/2"	2,790
	11 7/8"	LT 171188	16d	#8 x 1 1/2"	2,950
		SCL 11	16d	10d x 1 1/2"	6,735
14"	SCL 14	16d	10d x 1 1/2"	7,940	
3 1/2"	9 1/4"	SCL 2-9.25	16d	16d	8,380
	9 1/2"	SCL 2-9	16d	16d	8,380
	11 1/4"	SCL 2-11.25	16d	16d	9,955
	11 7/8"	SCL 2-1188	16d	16d	9,955
	14"	SCL 2-14	16d	16d	13,275
	16"	SCL 2-16	16d	16d	13,275
	18"	SCL 2-18	16d	16d	15,855
	20"	SCL 2-20	16d	16d	15,855
5 1/4"	9 1/4"	SCL 3-9.25	16d	16d	13,275
	9 1/2"	SCL 3-9	16d	16d	13,275
	11 1/4"	SCL 3-11.25	16d	16d	19,910
	11 7/8"	SCL 3-1188	16d	16d	19,910
	14"	SCL 3-14	16d	16d	22,425
	16"	SCL 3-16	16d	16d	24,425
	18"	SCL 3-18	16d	16d	23,450
	20"	SCL 3-20	16d	16d	23,450

## Face Mount Hangers

Supported Member Width	Supported Member Depth	Hanger	Nail Type		Maximum Factored Resistance (lbs)
			Header	Joist	
1 3/4"	9 1/4" – 14"	LF 179	16d	#8 x 1 1/2"	2,680
		HCSLVL 8.5	16d	10d x 1 1/2"	5,390
	14"	LF 1714	16d	#8 x 1 1/2"	2,545
3 1/2"	4 3/8" – 5 1/2"	RJH 35425	16d	10d x 1 1/2"	3,250
	7 1/4" – 11 7/8"	RJH 359	16d	10d x 1 1/2"	3,250
	9 1/4" – 14"	HCDLVL 8.5	16d	10d x 1 1/2"	7,110
		JF 359	16d	16d	10,775
		HCDLVL 11.5	16d	10d x 1 1/2"	7,110
14" – 18"	JF 3511	16d	16d	11,615	
5 1/4"	9 1/4" – 14"	HCTLVL 8.5	16d	16d	8,260
		JF 529	16d	16d	12,420
	14" – 18"	HCTLVL 11.5	16d	16d	8,260
		JF 5211	16d	16d	14,470

## General Notes

The hangers listed are manufactured by MGA Connectors®. For additional information, please refer to their current literature.

Contact your Trus Joist representative for assistance with other hanger or support conditions.

- Factored resistances are based on standard term duration of load.
- Hanger capacity may be more or less than that of the supported member; therefore, both the hanger and the Microllam® LVL capacities must be checked.
- Leave 1/16" clearance (1/8" maximum) between the end of the supported member and the support member or hanger.

## Header Assumptions

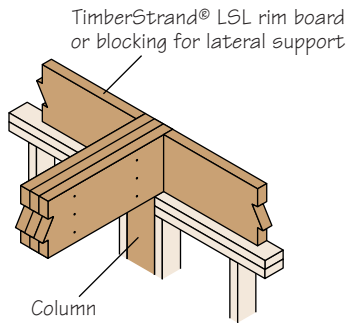
- Hangers supported by headers of Microllam® LVL, Parallam® PSL, TimberStrand® LSL, Douglas fir or southern pine.
- Top flange hangers supported by 6x6 minimum size headers.
- Face mount hangers supported by 2" minimum width headers.

## Nailing Requirements

Fill all round, dimpled and positive angle nail holes with the proper nails.

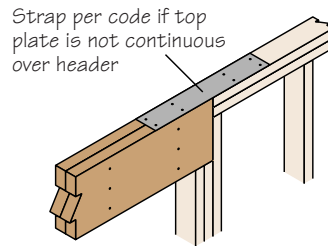
- 10d x 1 1/2" nails are 9 gauge (0.148" diameter) by 1 1/2" long.
- 16d nails are 16d common (0.162" diameter) by 3 1/2" long.
- #8 x 1 1/2" wood screws are 6 gauge (0.125" diameter).

### Bearing at Wall



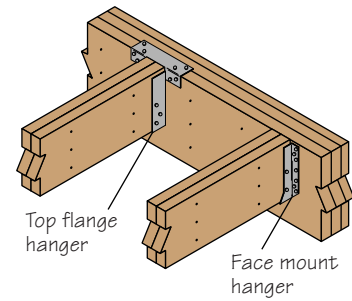
L1

### Bearing for Door or Window Header



L2

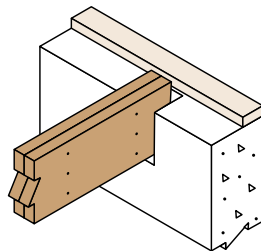
### Beam to Beam Connection



L3

See Microllam® LVL FRAMING CONNECTORS on pages 10 and 11

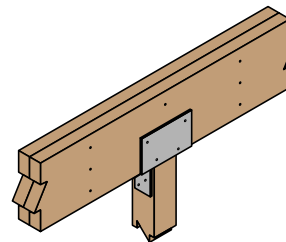
### Bearing at Concrete Wall



L4

Protect wood from direct contact with concrete

### Bearing at Column



L5

Verify Microllam® LVL beam bearing length below

## Bearing Length Requirements

Factored Reaction (lbs)	Beam Width		
	1 3/4"	3 1/2"	5 1/4"
6,000	3 1/4"	1 3/4"	1 1/2"
8,000	4 1/4"	2 1/4"	1 1/2"
10,000	5 1/4"	2 3/4"	1 3/4"
12,000	6 1/2"	3 1/4"	2 1/4"
14,000	7 1/2"	3 3/4"	2 1/2"
16,000		4 1/4"	3"
18,000		4 3/4"	3 1/4"
20,000		5 1/4"	3 1/2"
22,000		6"	4"
24,000		6 1/2"	4 1/4"
26,000		7"	4 3/4"
28,000		7 1/2"	5"
30,000		8"	5 1/4"
32,000			5 3/4"
34,000			6"

## Nails Installed on the Narrow Face

Nail Size	Closest On-Center Spacing Per Row
8d (2 1/2") Common	3"
10d (3") or 12d (3 1/4") Common	4"
16d (3 1/2") Common	8"

• If more than one row of nails is used, the rows must be offset at least 1/2" and staggered.

Microllam® LVL is intended for dry-use, non-treated applications

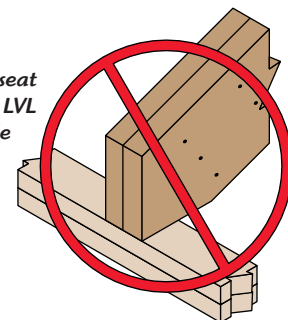
## Imperial to Metric Conversion Table

Imperial Unit	Metric Conversion
1 kip	4.448 kN
1 lb	4.448 N
1 ft	0.3048 m
1 in	25.40 mm
1 lb mass	0.4536 kg
1 lb · ft	1.356 N · m
1 lb · in	0.1130 N · m
1 in <sup>4</sup>	0.4162 × 10 <sup>6</sup> mm <sup>4</sup>
1 lb/ft <sup>2</sup>	47.88 Pa
1 lb/in <sup>2</sup>	6.895 kPa

## General Notes

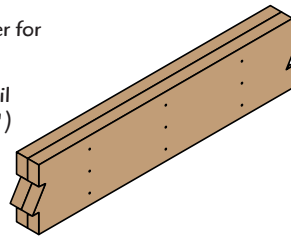
- Minimum bearing length: 1 1/2" at ends, 3 1/2" at intermediate supports.
- Full bearing width required.
- Bearing lengths are based on a factored bearing resistance of 1090 psi.

DO NOT overhang seat cuts on Microllam® LVL beams beyond inside face of support member



### 1 3/4" Width Pieces:

- Minimum of 2 rows 12d (3 1/4") common nails at 12" on-center
- Minimum of 3 rows 12d (3 1/4") common nails at 12" on-center for 14", 16", 18" and 20" beams
- Nailed connections require an additional row of nails when nail size is smaller than specified above (minimum 10d (0.128" x 3") box nail).



**L6** Multiple pieces of Microllam® LVL can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 7"



## Multiple Member Connections for Side-Loaded Beams

**Assembly A**  
2 pcs. 1 3/4"

**Assembly B**  
3 pcs. 1 3/4"

**Assembly C**  
4 pcs. 1 3/4"

### Maximum Factored Uniform Load Applied to Either Outside Member (PLF)

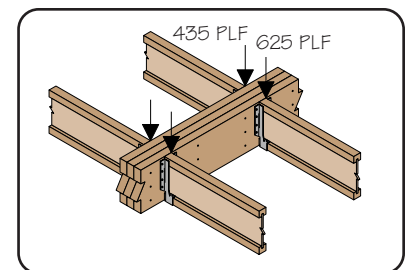
Multiple Assembly (see pictures)	Nailed Connection <sup>(1)(2)</sup>		Through-Bolted Connection <sup>(3)</sup>		Structural Wood Screw Connection <sup>(4)</sup>	
	2 Rows 12d (0.148" x 3.25") Common Wire at 12" o.c.	3 Rows 12d (0.148" x 3.25") Common Wire at 12" o.c.	2 Rows 1/2" Bolts at 24" o.c.	2 Rows 1/2" Bolts at 12" o.c.	2 Rows 1/4" x 3 1/2" Screw at 24" o.c.	2 Rows 1/4" x 3 1/2" Screw at 12" o.c.
A	745	1115	690	1380	530	1060
B	560	835	520	1035	400	795
C			460	920		

- (1) NAILED CONNECTION values may be doubled for 6" on-center or tripled for 4" on-center nail spacing.
- (2) NAILED CONNECTION values require an additional row of nails when nail size is smaller than specified above (minimum 10d (0.128" x 3") box nail).
- (3) A307 bolts with washers required. Bolt holes to be 9/16" maximum.
- (4) Screws must have self-drilling tip and minimum bending yield strength of 217,000 psi. Lead holes may be required by local building official.

### General Notes

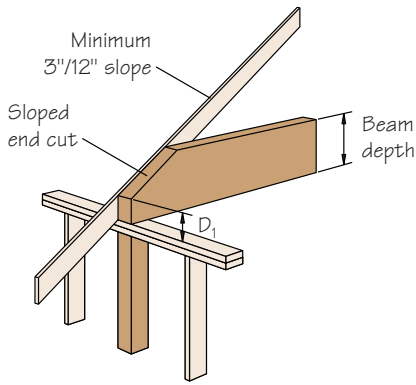
- Verify adequacy of beam in factored resistance tables on pages 8-9.
- Values listed are for standard term loading.
- Use specific gravity of 0.5 when designing connections.
- Beams wider than 7" require special consideration by the design professional.
- Connections are based on Limit States Design per CSA O86-01.

### Example Problem



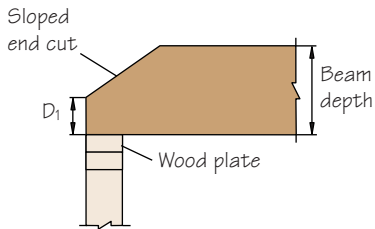
#### Solution:

First, check factored resistance tables to verify that 3 pcs. can carry the total factored load of 1060 plf with proper live load deflection criteria. Total factored load = (1.25 x dead load) + (1.5 x live load). Maximum factored load applied to either outside member is 625 plf. For a 3 pc. 1 3/4" multiple assembly, 2 rows 12d (3 1/4") nails at 12" on-center is good for only 560 plf. Therefore, use 3 rows 12d (3 1/4") nails at 12" on-center (good for 835 plf). Alternates: 2 rows 1/2" bolts or 1/4" x 3 1/2" screws at 12" on-center.

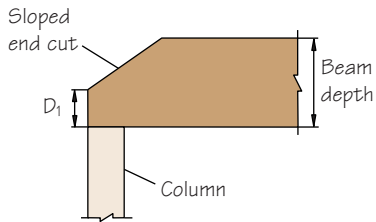


Tapered end cuts detailed above are not allowed with TJI® joists

### Wood Plate Connection



### Column Connection



## Factored Reactions for 3 1/2" Microllam® LVL Beam Members<sup>(1)</sup> (lbs)

Bearing	Beam Depth	D <sub>1</sub> Outside Heel Height								
		4 1/2"	5"	5 1/2"	6"	6 1/2"	7"	7 1/2"	8"	10"
3 1/2" Wood Plate <sup>(2)</sup>	7 1/4"	7480	7595	7595	7595	7595	7595	7595	7595	
	9 1/4"	7480	7595	7595	7595	7595	7595	7595	7595	
	9 1/2"	7480	7595	7595	7595	7595	7595	7595	7595	
	11 1/4"	7480	7595	7595	7595	7595	7595	7595	7595	7595
	11 7/8"	7480	7595	7595	7595	7595	7595	7595	7595	7595
	14"		7595	7595	7595	7595	7595	7595	7595	7595
	16"				7595	7595	7595	7595	7595	7595
	18"					7595	7595	7595	7595	7595
	18 3/4"						7595	7595	7595	7595
20"							7595	7595	7595	
5 1/4" Wood Plate <sup>(2)</sup>	7 1/4"	8070	8070	8070						
	9 1/4"	8085	8780	9480	10175	10295	10295	10295		
	9 1/2"	8085	8780	9480	10175	10575	10575	10575	10575	
	11 1/4"	8085	8780	9480	10175	10870	11395	11395	11395	11395
	11 7/8"	8085	8780	9480	10175	10870	11395	11395	11395	11395
	14"	8085	8780	9480	10175	10870	11395	11395	11395	11395
	16"			9480	10175	10870	11395	11395	11395	11395
	18"				10175	10870	11395	11395	11395	11395
	18 3/4"					10870	11395	11395	11395	11395
20"						11395	11395	11395	11395	
3 1/2" Column <sup>(3)</sup>	7 1/4"	7480	8070	8070	8070					
	9 1/4"	7480	8175	8870	9565	10260	10295	10295	10295	
	9 1/2"	7480	8175	8870	9565	10260	10575	10575	10575	
	11 1/4"	7480	8175	8870	9565	10260	10955	11650	12345	12520
	11 7/8"	7480	8175	8870	9565	10260	10955	11650	12345	13215
	14"		8175	8870	9565	10260	10955	11650	12345	13375
	16"				9565	10260	10955	11650	12345	13375
	18"					10260	10955	11650	12345	13375
	18 3/4"						10955	11650	12345	13375
20"							11650	12345	13375	

(1) For 1 3/4" and 5 1/4" beams multiply by 0.5 and 1.5, respectively.

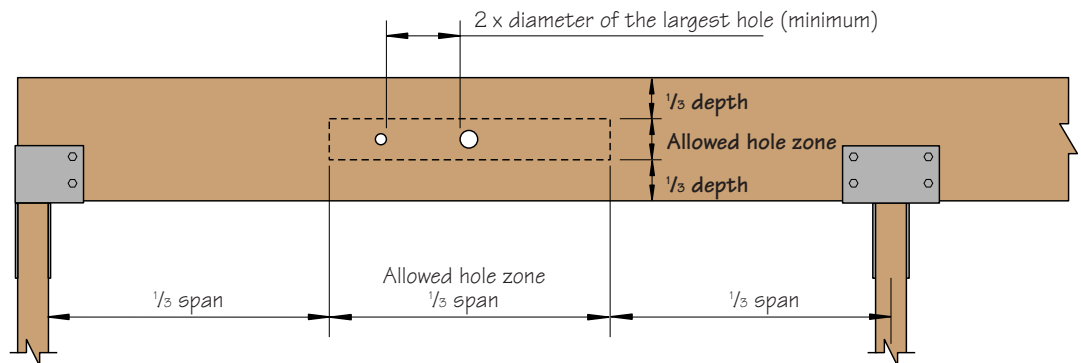
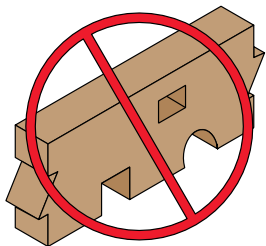
(2) Bearing lengths based on a factored bearing resistance of 620 psi.

(3) Bearing lengths based on Microllam® LVL's factored bearing resistance of 1090 psi.

### General Notes

- No increase for duration of load is permitted above standard term.
- No concentrated load within tapered cut.
- Table only considers downward loading. Contact your Trus Joist representative for assistance with uplift loading or other conditions.

## Allowable Holes



### General Notes

- 2" maximum round hole size.
- Allowed hole zone suitable for uniformly loaded beams only.
- No rectangular holes.
- No holes in cantilevers.

# Service you can count on

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Beams  
Columns



Headers  
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